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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,200	06/21/2001	Isamu Tobita	JP920000070US1	8666

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IBM CORPORATION
PO BOX 12195
DEPT 9CCA, BLDG 002
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER	
CHAU, MINH H	

ART UNIT	PAPER NUMBER
2854	6

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/886,200	TOBITA, ISAMU	
	Examiner	Art Unit	
	Minh H Chau	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (US # 3,866,533) in view of Ohsawa et al. (US # 4,774,882).

With respect to claims 1 and 2, Gilbert et al. teach an impact printer (10) comprising print hammers or pins (20) for providing an impact and a pulse control circuit or an impact force controller (40) for controlling the pulse width or the impact force of the hammers or pins (see cols. 2-3 of Gilbert et al.).

With respect to the language "drive means ... magnetic force" (last two paragraph of claim 2), Gilbert et al. teach in cols. 2-4 that impact force of the hammers (20) is actuates by an electromagnetic actuating means that generated by a voltage source or electricity, and the impact force of the hammers (20) is changed according to changes of the magnetic force that generated by the electromagnetic actuating means.

Gilbert et al. teach all the limitations as explained above to claims 1 and 2, except for the limitation of the impact force of the pins is changing accordance with the settings for characters that are to be printed.

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) accordance to the settings for characters to be printed (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Gilbert et al. with an impact force controller that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

With respect to claim 3, see cols. 3-4 and claim 1 of Gilbert et al. that teach the pulse control circuit or the impact force controller (40) for controlling the voltage that supply to the electromagnetic actuating means of the print hammers (20).

With respect to claims 10 and 11, Gilbert et al. teach a method and a printing controller for a printer comprising print hammers or pins (20) for print a plurality of dots to form characters of a sheet, a scan drivers or data analyzer (28, 30) for identifying or determining the information or character to be printed and a pulse control circuit or a printer head controller (40) for controlling the impact force of the print hammers or pins (20) (see cols. 2-4 of Gilbert et al.).

Gilbert et al. teach all the limitations as explained above to claims 10 and 11, except for The limitation of "generating impact ... character set" (claim 10) and "a printer controller ...the pins" (claim 11).

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) accordance to the type of characters set which is identified or determined by the CPU or data analyzer (32) (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Gilbert et al. with a pulse control circuit or a printer head controller (40) that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

3. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quaif et al. (US # 4,020,939) in view of Ohsawa et al. (US # 4,774,882).

With respect to claims 4 and 6, Quaif et al. teach a matrix printer or a form printer (10) comprising a plurality of print hammers or pins for impacting a printing media or a form, a drive unit (18) for driving the hammers or pins traverses the printing media or the form during printing, a controller (22) for controlling the drive unit and for controlling or changing the impact force of the hammers or pins according to the character pattern (see cols. 2-4 of Quaif et al.). With respect to the recitation of "a platen", although Quaif et al. do not specifically mentioned the used of a platen, it is clear to one of ordinary in the art that the matrix printer of Quaif et al. must comprising a platen so that the print hammers can properly impact the character on the printing media or the form, it is also noted that the uses of a platen in a matrix printer is well known in the art.

Quaif et al. teach all the limitations as explained above to, except for the limitation of the impact force of the pins is changing accordance with the settings for characters that are to be printed.

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) accordance to the settings for characters to be printed (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Quaif et al. with an impact force controller that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

With respect to the recitation of "changing ... impact force" (lines 5-11 of claim 6), Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) accordance to the settings for characters to be printed, the controller controlling the impact force of the print hammer by reducing or increasing the impact force of the print hammer according to the high density printing mode (thick characters) or normal density printing mode (fine characters) (see cols. 4-8 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Quaif et al. with an impact force controller for controlling the impact force of the print hammer in according to the high or normal density printing mode that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quaif et al. and Ohsawa et al. as explained to claim 4 above, and in view of The IBM Technical Disclosure Bulletin (NN79034110)

With respect to claim 5, the modified device of Quaif et al. and Ohsawa et al. teach all the limitations as explained above to claim 4, except for the moving velocity of the pins is changed in order to alter the impact force.

The IBM Technical Disclosure Bulletin teach an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font (page 4110-4112).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Quaif et al. and Ohsawa et al. with the control means for assigning discrete impact force or impact velocities to each character font that taught by The IBM Technical Disclosure Bulletin so that the impact force for the selected character can be precisely achieved.

5. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (US # 3,866,533) in view of Kobayashi et al. (US # 4,566,813).

With respect to claims 7 and 8, Gilbert et al. teach an impact printer (10) comprising print hammers or pins (20) for providing an impact force and a pulse control circuit or an impact force controller (40) for controlling the pulse width or the impact force of the hammers or pins (see cols. 2-3 of Gilbert et al.).

Gilbert et al. teach all the limitations as explained above, except for the limitation of changing the impact force of the pins according to the number of dots that arranged across the widths of lines forming the print image.

Kobayashi et al. teach a dot matrix printer controller comprising a control circuit for controlling the pulse width current applied to the print heads in according to the total number of dots used to print character (print image) or a number of dots that arranged across the widths of lines forming the print image (see cols. 3-5 of Kobayashi et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the impact force controller of Gilbert et al. to include the control circuit for controlling the pulse width current applied to the print heads in according to the total number of dots used to print character as taught by Kobayashi et al. so that the thickness or the print density of a selected character or image can be consistency maintained.

With respect to claim 9 and the recitation of "the impact force... object image" (lines 6-8 of claim 8), Kobayashi et al. teach a control circuit comprising a upper limit or a lower limit mode for control of increasing or decreasing the width of the applied pulse in according to the total of dots used to print character (print image) or a number of dots that arranged across the widths of lines forming the print image (see cols. 3-6 of Kobayashi et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the impact force controller of Gilbert et al. to include the control circuit comprising a upper limit or a lower limit mode for control of increasing or decreasing the width of the applied pulse in according to the total of dots used to print character as taught by Kobayashi et al. so that print quality such as thickness or print density can be consistency maintained during the printing of a selected character.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (US # 3,866,533) and Ohsawa et al. (US # 4,774,882) in view of The IBM Technical Disclosure Bulletin (NN79034110)

With respect to claims 12 and 13, Gilbert et al. teach a method and a printing controller for a printer comprising print hammers or pins (20) for print a plurality of dots to form characters

of a sheet, a scan drivers or data analyzer (28, 30) for identifying or determining the information or character to be printed and a pulse control circuit or a printer head controller (40) for controlling the impact force of the print hammers or pins (20) (see cols. 2-4 of Gilbert et al.).

Gilbert et al. teach all the limitations as explained above, except for the limitation of changing the impact force of the pins according to the type of character set determining by the data analyzer.

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) according to the type of characters set which is identified or determined by the CPU or data analyzer (32) (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Gilbert et al. with a pulse control circuit or a printer head controller (40) that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

The modified device of Gilbert et al. and Ohsawa et al. teach all the limitations as explained above, except for limitation of the impact force of the pins is changing or being selected to a designated setup value corresponds to a character font determining by the data analyzer.

The IBM Technical Disclosure Bulletin teach an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font (page 4110-4112).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Gilbert et al. and Ohsawa et al. with the control means for assigning

discrete impact force or impact velocities to each character font that taught by The IBM Technical Disclosure Bulletin so that the print quality of a variety of character font can be achieved.

Response to Arguments

7. Applicant's arguments filed 02/21/03 have been fully considered but they are not persuasive.

With respect to the rejection of claims 1-3 and 10-11 under 35 U.S.C. § 103(a) as being unpatentable over Gilbert et al. (US # 3,866,533) in view of Ohsawa et al. (US # 4,774882), **claims 7-9** under 35 U.S.C. § 103(a) as being unpatentable over Gilbert et al. (US # 3,866,533) in view of Kobayashi et al. (US # 4,566,813), and **claims 12-13** under 35 U.S.C. § 103(a) as being unpatentable over Gilbert et al. and Ohsawa et al. in view of the IBM Technical Disclosure Bulletin (NN79034110), the Applicant has argued that the reference to Gilbert is disqualified as being used as a prior art reference because the Gilbert, which qualifies as prior art under 35 U.S.C. § 102(e) does not preclude patentability under 35 U.S.C. § 103 since Gilbert and the claimed invention in claims 1-3 and 7-13 were at the time the invention was made, subject to an obligation of assignment to the same person, which in this case was IBM. The Examiner respectfully disagrees with the Applicant's opinion because the reference Gilbert is qualifies as prior art under 35 U.S.C. § 102(b). Thus, Gilbert is qualified as being used as a prior art under 35 U.S.C. § 103(a). Therefore, the rejection of claims 1-3 and 7-13 are stand.

With respect to the rejection of claims 4 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Quaif et al. (US # 4,020,939) in view of Ohsawa et al. (US # 4,774882), the Applicant's arguments center around that there is no motivation to combine Quaif with Ohsawa

as there is no suggestion or motivation in either Quaif or Ohsawa or in their combination or in the knowledge of those ordinarily skilled in the art to combine the teaching of *varying the print hammer repetition rate in accordance with the printing speed to maintain constant width of the printed characters* as taught in Quaif with the teaching of *increasing the printing impact power in the case of a normal density imprint function and decreasing the printing impact power in the case of a high density imprint function* as taught in Ohsawa. The Examiner respectfully disagrees with the Applicant's opinion because while it is true that Quaif teach *varying the print hammer repetition rate in accordance with the printing speed to maintain constant width of the printed characters*, it is also true that Quaif teach *an impact energy control circuit for controls the hammer drive pulse width or impact force in accordance with the power supply variation* (see cols. 2-4) and while Quaif do not teach the changing the impact force of the pins or hammer in accordance with the types of characters that are to be printed, Ohsawa teach *an impact printer including an impact force controller for controlling the impact force of the hammer in accordance to the settings for characters to be printed* (see col. 6 of Ohsawa). Therefore, in view of this teaching, it would have been obvious to one of skill in the art to modify the device of Gilbert to include an impact force controller of Ohsawa so that a design density for a selector character can be achieved. Thus the above teachings provide a proper motivation for combining or modifying the reference.

The Applicant also argued that Quaif and Ohsawa, taken singularly of in combination, do not teach or suggest *"a drive unit, for reciprocally driving the pins in both forward and backward direction relative to the form on the platen"* as recited in claim 4 and similarly in

claim 6. The Examiner respectfully disagrees with the Applicant's opinion because Quaif teach a printer including a drive unit (18) for driving the print head that having print hammer or pins traverses the printing media or the form during printing, which meet the recitation of *"a drive unit, for reciprocally driving the pins in both forward and backward direction relative to the form on the platen"* as broadly recited in claim 4 and in claim 6.

With respect to the rejection of claim 5 under 35 U.S.C. § 103(a), the Applicant's arguments center around that there is no motivation to combine Quaif and Ohsawa with the IBM Technical Disclosure Bulletin as there is no suggestion or motivation in either Quaif, Ohsawa or the IBM Technical Disclosure Bulletin or in their combination or in the knowledge of those ordinarily skilled in the art to combine the teaching of the references. The Examiner respectfully disagrees with the Applicant's opinion because as explained in the rejection above that the modified device of Quaif and Ohsawa teach the printer including a controller for controlling the impact force of the hammer or pins in accordance with the types of characters that are to be printed and while Quaif and Ohsawa do teach "the moving velocity of the pins is changed in order alter the impact force" as recited in claim 5, the IBM Technical Disclosure Bulletin tech an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font (pages 4110-4112). Therefore, in view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Quaif et al. and Ohsawa et al. with the control means for assigning discrete impact force or impact velocities to each character font that taught by The IBM Technical Disclosure Bulletin so that the impact force for the selected character can be precisely achieved. Thus, the above teachings provide a proper motivation for combining or modifying the reference.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh H Chau whose telephone number is (703) 305-0298. The examiner can normally be reached on M - TH.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew H Hirshfeld can be reached on (703) 305-6619. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MHC
May 12, 2003

ANDREW H. HIRSHFELD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800